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UNITED STATES DISTRICT COURT

DISTRICT OF OREGON

STEPHEN RAHER,
Plaintiff,

Case No. CV 09-526-ST

v.

DECLARATION OF BRYCE WARD

FEDERAL BUREAU OF PRISONS,
Defendant,

and

THE GEO GROUP, INC.,
Defendant-Intervenor.

I, Bryce Ward, declare as follows:

1. I, Bryce Ward, am a senior economist at ECONorthwest (ECONW), which provides analysis in economics, finance, planning, and policy evaluation for businesses and governments. I have also served as a Visiting Assistant Professor or a Visiting Adjunct Professor at Lewis and Clark College, the University of Oregon, and Portland State University, where I taught courses in microeconomic theory, econometrics, public economics, labor economics, and environmental economics. I have testified on economic matters in administrative, legislative, and court proceedings, and I have presented papers at professional proceedings on economics. I received a Ph.D. in economics from Harvard University. I attach a copy of my *curriculum vitae* as Exhibit A.

2. As I understand the issues in this matter, the plaintiff submitted a Freedom of Information Act (FOIA) request for several documents pertaining to procurement actions taken by the Federal Bureau of Prisons (BOP). The requested documents included contracts and various proposal elements submitted in pursuit of “Criminal Alien Requirements” (the CAR series) contracts. BOP withheld some of the requested information under FOIA Exemption 4, which covers trade secrets and/or privileged or confidential commercial or financial information.

3. As Judge Stewart notes in her opinion and order, in order to withhold information under Exemption 4, “The person seeking to withhold the information must establish both actual competition in the relevant market and a likelihood of substantial competitive injury if the information is released.”¹

¹ Opinion and order p. 10

4. I have been asked to review the declarations submitted by the defendants in support of their Exemption 4 claims and assess whether or not they provide sufficient evidence to: (a) establish the presence of competition in the relevant market and (b) conclude that the release of the withheld information will cause substantial harm to the competitive position of the affected parties.

5. In order to complete this assignment, I have reviewed a number of documents. These include:

- Memorandum in support of plaintiff's motion for partial summary judgment²
- Opinion and Order³
- Declaration of Matthew D. Nace⁴
- Declaration of Cole Cater⁵
- Declaration of Kyle Schiller⁶
- Second Supplemental Declaration of Leeann Tufte⁷
- Department of Justice "Freedom of Information Act Guide, May 2004"⁸
- CAR 5 and CAR 6 contracts for Reeves County, TX
- Literature on private prisons
- Literature on competition and competitive advantages

² Case 3:09-cv-00526-ST Document 34

³ Case 3:09-cv-00526-ST Document 48

⁴ Case 3:09-cv-00526-ST Document 68

⁵ Case 3:09-cv-00526-ST Document 66

⁶ Case 3:09-cv-00526-ST Document 61

⁷ Case 3:09-cv-00526-ST Document 65

⁸ <http://www.justice.gov/oip/exemption4.htm>

6. In brief, it is my opinion that the defendants provided information that may support the conclusion that prison operators compete in the relevant market, at least some of the time. Specifically, the defendants provide evidence that multiple operators typically bid for CAR contracts, but not all bidders win contracts. Assuming that most of the submitters met BOP requirements and that BOP awarded the contract based on fair consideration of each submission, this suggests that there may be competition in the relevant market (although the market may not be competitive in a strictly economic sense). I also opine that the defendants have not provided sufficient information to support a conclusion that releasing the information at issue would cause substantial competitive harm. I describe my opinions in more detail below.

7. I expect an analysis designed to establish the existence of competition in the relevant market to contain two steps. First, the analysis should define the relevant market. Second, it should assess if a competitive process determines the outcomes in this market. While the defendants do not provide a precise definition of the relevant market, they do provide evidence consistent with the existence of competition in the relevant market if certain assumptions hold.

8. The *Horizontal Merger Guidelines*, published by the U.S. Department of Justice and Federal Trade Commission, describe criteria by which economists and others define markets for goods and services.⁹ The definition of a market has two parts. The product market describes the goods or services at issue, and any relevant substitutes. The geographic market describes the area over which the goods or services are traded.

⁹ U.S. Department of Justice and the Federal Trade Commission 1997. *Horizontal Merger Guidelines*.

9. Consumer responses to hypothetical price increases define the product and geographic markets. For example, if an aspiring monopolist imposes a hypothetical “small but significant and nontransitory”¹⁰ price increase on a product, and consumers could avoid the price increase by switching to a substitute product, then the product market would include both the product at issue and the substitute. The *Guidelines* describe an iterative process of posing the hypothetical price-increase question about an aspiring monopolist who controls an ever-expanding list of products and substitutes until consumers have no practicable alternative but to purchase from the monopolist. This list of products defines the product market.

10. Likewise, if consumers could avoid the price increase by purchasing the product from a firm in another location, the geographic market would include both the aspiring monopolist and the other firm. In subsequent iterations, the hypothetical price-increase question assumes that the monopolist controls an ever expanding number of firms in other locations until consumers have no practicable alternative but to purchase from a firm controlled by the monopolist. The area that encompasses these firms defines the geographic market.

11. The defendants do not provide a formal market analysis that adequately defines the relevant market. At most, they allude to substitution possibilities for sellers and buyers.¹¹ Defining a relevant market requires a more rigorous and detailed analysis. Generic descriptions of other buyers and sellers of prison services do not prove that those other buyers and sellers participate in this particular market. Economic theory and my own informal analysis suggests that the relevant market here consists of all prisons that

¹⁰ *Guidelines*, p. 8.

¹¹ Carter pp. 2-6; Schiller p.2, 4-5; Nace pp. 4-5, 11-12

meet the CAR eligibility requirements and all buyers who would purchase prison services from a CAR eligible prison without significant modification to the prison facility or its operations. If a prison cannot satisfy BOP's requirements, then BOP could not (without changing its requirements) turn to this prison if the hypothetical monopolist instituted a small, significant, non-transitory increase in price. Similarly, if other buyers' requirements differ from BOP's CAR requirements, then the prisons in the CAR market could not turn (without significant modification) to other potential buyers in response to a small, significant, non-transitory decrease in price instituted by a hypothetical monopsonist.¹²

12. The information submitted by the defenants does not include a specific list of facilities that potentially could compete for the CAR series contracts, nor does it describe the set of buyers who would willingly contract with a CAR eligible facility (without significant modification). The defendants' documents provide passing reference to this information, but do not state it specifically.

13. For instance, the Carter declaration notes that a former CAR facility operated by CCA was subsequently used by the United States Marshals Service and another facility that housed BOP prisoners subsequently was used by the Immigration and Naturalization Service¹³; however, the declaration does not describe how much modification the facility and its operations required to make these transitions.¹⁴ If the CCA needed to make non-trivial changes to these facilities or their operations to accommodate these transitions, then these

¹² Given this market definition, I note that the set of prisons in the relevant market may change from offering to offering if BOP or any competing buyers change their requirements or regulations in ways that expand or restrict the set of eligible prisons.

¹³ Carter does not specifically state that the facility ultimately used by INS was a CAR facility. He only states that it housed BOP prisoners.

¹⁴ Carter p. 5

anecdotes are not evidence that suppliers of CAR prisons can seek out alternative buyers for their facilities in the relevant market.

14. The Nace, Carter, and Schiller declarations all note that, in the past, several prisons have submitted the proposals necessary to obtain a CAR series contract and, usually, only a subset of submitters were awarded contracts.¹⁵ Assuming that the firms not selected to receive these contracts actually met BOP's requirements and that BOP awards each contract based upon a fair evaluation of the merits of each proposal, the existence of rejected submissions suggests that competition for some CAR contracts exists. If the assumptions noted in the previous sentence do not hold, then evidence of surplus submissions may not support the conclusion that operators compete in this market. While these assumptions seem plausible, the defendants do not provide extensive support for them. Furthermore, on occasion (e.g., CAR series 5 and 6), BOP awarded contracts to all those who submitted bids. This suggests that, at times, BOP may award CAR contracts based on an apportionment among firms that submitted bids, rather than on competition among bidders.¹⁶

15. In order to determine if releasing the information withheld under Exemption 4 would cause substantial competitive harm, the defendant must clearly answer the question: how will competitive positions change in this market *but for* the release of the information? That is, they should present sufficient information that will allow the court to imagine how

¹⁵ Nace p.11-12; Carter p.6; Schiller p.4

¹⁶ I also note that the fact that some qualified proposals were not selected does not imply that the market is competitive in the traditional economic sense. BOP or some private prison(s) could possess a sufficient degree of market power to reject the hypothesis that this market is competitive in the formal economic sense. Determining the degree of market power in this market would require additional analysis.

this market would look if the information were released and compare it to what it would look like if the information were not released.

16. A “but for” analysis requires a clear description of the specific change that might occur. Before one can assess the competitive impact of the information at issue, one needs to understand what information competitors in the market already know. The Nace, Carter, and Schiller declarations do not directly address this question, but they each appear to assume that the withheld information is (and always has been) completely secret from their competitors. This seems unlikely. Competitors have a variety of methods they might employ to obtain information about competitor pricing, operations, and costs. Some information might be obtained from publicly available sources. Other information might be obtained from employees who change firms. Still other information might be obtained from interviews with buyers, suppliers, or others.¹⁷

17. In this market, some information is publicly available. For instance, the plaintiff was able to obtain and provide me with the contract pricing details for the CAR 5 and CAR 6 awards to Reeves County, TX. The plaintiff also obtained staffing and cost information from several state contracts.¹⁸ Similarly, whether or not private prisons save the government money is an important policy question. As such, an extensive literature compares the costs of public and private prisons.¹⁹ These analyses provide pricing/cost information for various prisons at various points in time. Other details of prison operation may be obtained from BOP regulations or from simply visiting the prison facility. While I

¹⁷ Porter, M. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press. p.98

¹⁸ Fourth Raher Declaration Exhibits E-K

¹⁹ An extensive list of these studies is contained in Gaes, G. (2010) “The Current Status of Prison Privatization Research on American Prisons.” *ExpressO*

don't know the extent to which information moves with employees across firms or is obtained from interviews with suppliers, the possibility that a substantial amount of information at issue passes through such channels seems non-trivial.²⁰ As such, the marginal impact of the FOIA release on the information available to competitors is unclear.

18. Setting aside the uncertainty regarding what information competitors might actually learn as a result of the release of the disputed information, the defendants have not shown, in an economic sense, the means by which the release of the information would cause prison operators, "substantial competitive injury." Economists (and others) typically rely on two approaches to address the type of causal question at issue in this matter. One approach is empirical, while the other is theoretical. The defendants, however, do not successfully adopt either approach. They completely eschew the empirical approach. They present no empirical evidence that suggests that the release of the types of information at issue caused competitive harm in this or similar markets in the past.

19. Without empirical evidence to support their claims, the defendants rely on theoretical (or hypothetical) arguments. The arguments they present, though, do not draw on any well-defined (and supported) model for how firms obtain or maintain competitive position in this market. A good economic model, employing realistic assumptions and established theory, can yield realistic predictions of market outcomes. The defendants do not offer or rely on any such model.²¹ They merely speculate about what could happen.

²⁰ Nace (p. 11) claims that private prison operators "do not make frequent, major changes to their policies and procedures." Schiller (p. 4) states that the "proprietary proposal information" is "normally still in use for ten years or longer." As such, even if the information obtained through these channels is old it likely contains much of the content of the withheld information.

²¹ Defendants do not present a basic model for how this market operates. Economists have developed a number of potential models that they could have adopted and applied. For instance, if this market is characterized by oligopoly, then the defendants could have adopted and adapted one of the various models of oligopoly competition (e.g., Bertrand or Cournot competition). Then, assuming their model is built upon realistic

Their speculations, however, frequently rely on assumptions that do not withstand scrutiny.

20. Before I specifically address the defendants' claims, it is worth briefly defining competitive position and discussing the main determinants of it. A firm's competitive position reflects its position in a market relative to its competitors. Firm competitive position might be determined by a number of factors. Analysts frequently focus on factors like the threat of new entrants, the bargaining power of suppliers, the bargaining power of buyers, the threat of substitute products or services, and the intensity of the rivalry among existing firms. These five factors, most famously associated with Harvard professor Michael Porter, provide one basic framework the defendants could have adopted to develop support for their claims.²² Porter also points out that, "Sustaining and improving competitive position ultimately requires that a firm develop its internal capability in areas important to competitive advantage."²³

21. Economists primarily focus on two sources of firm competitive advantage – cost and differentiation.²⁴ A firm that can supply a similar quality product at a lower cost than its competitors can obtain a favorable competitive position because it can charge lower prices and/or earn higher profits. Alternatively, a firm that differentiates itself from its competitors (e.g., by offering a higher quality product) can obtain a favorable competitive

assumptions, they could have used their model to generate theoretically defensible hypotheses for how the release of this information would harm a competitor in this type of competition. They do not do this.

²² The five factors are detailed in Porter, M. (1980) *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: The Free Press.

²³ Porter, M. (1990) *The Competitive Advantage of Firms in Global Industries*, New York: The Free Press. p.67.

²⁴ Porter, M. (1980); Greer, D. (1992) *Industrial Organization and Public Policy, Third Edition*. New York: MacMillan Publishing Company.

position relative to its competitors if the product-price combination they offer satisfies a particular market niche. The defendants could have used a simple framework like this to establish a substantial threat of competitive harm. To do this, I would expect the defendants to demonstrate how the release of the specific information at issue will erode a firm's cost advantage or diminish its ability to differentiate its product.²⁵

22. The defendants make repeated claims that the release of the information withheld under Exemption 4 will yield substantial competitive harm to bidders by allowing competitors to underbid them on future contracts.²⁶ For this to occur, the release of the information must change competitors future bids from what they would have been but for the release, and the changes made must affect the outcome of future bidding opportunities. The defendants' arguments rest on the assumptions that competitors can and will change their bids from what they otherwise would have been based on the information at issue and that the incumbent provider will not change its bid (or bidding strategy) in ways that neutralize any advantage the information might provide. The defendants do not provide evidence that supports either of these assumptions.

23. The defendants argue that a variety of information should be withheld under Exemption 4. One important category of information in dispute is pricing information (e.g., the incremental unit pricing and the ramp up pricing). If the release of this pricing information is likely to cause substantial competitive harm, then the knowledge of the incumbents' prices must allow competitors to change their prices in ways that they

²⁵ There may be other specific sources of competitive advantage in the prison industry that defendants could have used to develop defensible hypotheses. There is also a substantial literature that attempts to elucidate the sources of cost or differentiation advantage that the defendants could have turned to in their attempts to establish support for their claims.

²⁶ E.g., Nace p.5, Carter p.7, Schiller p.6.

otherwise would not change. The defendants do not present a clear theory for how this will occur. They seem to assume that if competitors know the incumbents' prices they will simply select a lower price the next time they bid. They do not explain how competitors will be able to select these lower prices profitably, nor do they explain why the incumbents' prices would not change between bids.

24. If one assumes that a firm's competitive position primarily stems from sustainable competitive advantages like lower costs or higher quality, then, to argue that knowledge of competitor prices alone will cause competitive harm, one should advance a plausible theory for how knowledge of competitor prices allows firms to change their costs or quality.²⁷ The defendants do not clearly explain, and I have difficulty imagining, how this might occur.²⁸

25. Since the defendants do not explicitly outline their theory, I cannot evaluate precisely what they have in mind; however, I can think of a few scenarios that may reflect their thinking. Each of these scenarios fails to withstand closer scrutiny. In each scenario I consider, the release of the withheld pricing information has little to no impact on the outcome.

Scenario 1: Competitors have similar quality to incumbents and lower costs. The competitors lost the contract originally because they simply selected the wrong price.

²⁷ Again, there may be other sources of competitive advantage in this market. The defendants do not clearly explain any, so I focus on the cost and quality.

²⁸ In many markets, firms establish and maintain their competitive positions even though all competitors prices are easily observed.

They could have won the contract, but they tried to earn extra profit and priced too high.²⁹ This allowed a higher cost provider to win the contract.

What might happen if withheld pricing information is released? Once the price information is released, the competitors realize their mistake. Next time they compete, competitors can easily set a price that undercuts the incumbent. The competitor does not try for the extra profit, sets its price based on costs, prices lower than the incumbent (assuming the incumbent has not figured out how to lower their costs), and wins the contract.³⁰

What might happen if pricing information is not released? Perhaps based on the information contained in the publicly available total contract value information or based on greater motivation to win the contract, the competitor decides to eschew their pursuit of excess profit, set their price based on their cost, and wins the contract in the future (assuming the incumbent has not figured out how to lower their costs).

In this scenario the release of the withheld pricing information does not have a substantial impact on the outcome of future bidding. The firm that won the original contract did not win based on a sustainable competitive advantage (e.g., lower costs), rather it got lucky because their competitors made an error. Even without the release of

²⁹ We would not expect this scenario to occur in a highly competitive market. Rigorous competition tends to force firms to set prices near cost and precludes the pursuit of excess profit, or what economists call rent. If firms really are trying to obtain excess profit, then the government may not be managing the competition in this market effectively. The public would likely be better off if they could capture the rent the prison operators seek. Pricing at cost is also the expected outcome of one of the common models of oligopoly (known as Bertrand competition, in this model the oligopoly firms compete on price).

³⁰ When I discuss costs, I am using the standard economist definition of costs which includes opportunity costs. As such, if a firm prices at cost, it still earns a normal profit at least as great as its next best investment opportunity.

the Exemption 4 information, the incumbent's luck would likely run out and their competitor would win the contract.

Scenario 2: Competitors have similar quality to the incumbent, but they had higher costs at the time of the first contract.

What might happen if withheld pricing information is released? Competitors realize precisely how much they need to lower their costs to compete with the incumbent's previous offer. They work to reduce their costs. If they figure out ways to sufficiently reduce costs, they bid for future contracts and (assuming that the incumbent has not also figured out ways to reduce cost) win. If they cannot figure out ways to sufficiently reduce costs, they either do not submit bids or they submit bids and lose.

What might happen if withheld pricing information is not released? Perhaps based on the information contained in publicly available total contract value or based solely on the fact that they lost the bid and thus know they need to improve, competitors work to lower their costs so that they are more competitive the next time. If they figure out ways to sufficiently reduce costs, they bid for future contracts and (assuming that the incumbent has not also figured out ways to reduce cost) win. If they cannot figure out ways to sufficiently reduce costs, they either do not submit bids or they submit bids and lose.

The release of pricing information has little impact on this scenario. If firms are competing against each other, we expect them to work hard to lower their costs. If the incumbent firm's cost advantage cannot be duplicated easily (e.g., they are exploiting economies of scale, possess some cost saving proprietary technology, or have obtained better input prices), then they will win. The release of their pricing information will not

by itself erode this advantage. If the incumbent's cost advantage did not stem from difficult to replicate factors, then it is likely that competitors will overcome this advantage with or without the release of the pricing information.

26. The defendants may have other scenarios in mind when they claim that the release of pricing information will likely lead to substantial competitive harm, but they did not provide them. As such, I cannot more specifically evaluate them. The scenarios described above are illustrative, not exhaustive. They illustrate the types of criticisms that an effective argument in favor of the position that the release of this information would need to address and overcome. The information that the defendants have produced does not address the issues illustrated in these scenarios. As such, I do not believe that the defendants provide sufficient support to conclude that the release of pricing information seems likely to substantially affect competitive outcomes.³¹

27. The defendants make a related claim that the release of the withheld pricing information will compromise their proprietary pricing strategy.³² I do not find these claims compelling. First, the defendants do not provide evidence of the time and expense expended developing their pricing strategies.³³ Second, they do not adequately describe how their pricing strategy (as distinct from the prices themselves) yields a competitive advantage. Again, they simply assert that its release will cause harm.³⁴ Third, as I

³¹ They may have in mind scenarios where the release of pricing information prompts firms to try and differentiate themselves, but the description of the likely effects would resemble those already described.

³² Schiller p.8; Cole p.8-9

³³ Carter (p.9) claims that they were developed "at great expense and through years of experience and refinement," but he does not suggest a specific value or even a ballpark value.

³⁴ Carter (p.9) asserts that market entrants (who presumably have not already incurred these costs) can reduce their costs by simply copying CCA's pricing strategy, but he does not explain how large this cost saving might

understand it, the pricing strategy involves assigning prices to a clearly defined set of categories that reflect different scenarios that could apply over the life of the contract. The set of prices that a firm could assign to these categories (given its costs and expectations regarding the probabilities of the different scenarios) is limited. As such, it seems possible that each competitor would consider the full set of potential price strategies. In this case, the release of a competitor's pricing strategy may not reveal a strategy that firms have not already considered (and perhaps rejected).

28. The defendants also claim that the release of price information, pricing strategy, and other information is asymmetric.³⁵ The winning firm is harmed because its information is released, while its competitors maintain their secrets. However, given that all (or at least most) of the largest prison operators in this market have received government contracts (and most received contracts in the CAR 5 and CAR 6 offerings in dispute in this particular matter), the claims of asymmetry are unfounded.³⁶ All of these firms would have their information released. No single firm would be able to learn about its competitors while not having its own information revealed. Only a new entrant to the market could learn something about its competitors without revealing its own information, but the new entrant's information would only remain unknown until they won a contract and their information was obtain by a FOIA request. This possibility is remote, though, because, as the defendants themselves note, there are substantial entry barriers in this

be. Furthermore, he does not address the possibility that a new entrant may not wish to adopt the pricing strategy of the largest private prison operator.

³⁵ Nace p.5.

³⁶ The five entities at issue in this case are Corrections Corporation of American (CCA), Cornell Companies, Inc (now part of GEO), LCS Corrections Services, Management & Training Corporation (MTC), and Reeves County, TX. According Gaes (2010), CCA, GEO, and MTC represent the vast majority of privatized prisoners. CCA has approximately 75,000 inmates and detainees. GEO (GEO + Cornell) has approximately 66,000. MTC has approximately 17,000. There were 128,524 inmates in private prisons at the end of 2008. Gaes, G. (2010) "The Current Status of Prison Privatization Research on American Prisons."

market (including a requirement that prison operators bidding for CAR series contracts have experience managing similar contracts within the preceding three years).³⁷

29. The defendants also make a number of claims that the release of other details in their proposals would likely cause substantial competitive harm. The Schiller declaration provides the most extensive description of the set of details that defendants claim might be used to inflict substantial competitive harm. He cites, “staffing, vendors and service providers, equipment purchase vs. equipment leasing, maintenance costs, pricing methodology, and facility design and construction.”³⁸ Without reviewing the proposals themselves, I find it more difficult to evaluate these claims because I do not know exactly what information might be released. However, several of the critiques offered above may apply. First, it is unclear what information would be released that the competitors in the market could not obtain from other sources. Second, the defendants do not clearly explain how the released information would allow firms to improve their competitive positions (e.g., their costs or quality) in ways that they would not if the information were not released. Many of the details cited by the defendants can only take a narrow range of values. As such, it seems unlikely that firms have selected values that their competitors have not also considered (or would not consider on their own).

30. For instance, Schiller claims that the release of staffing information would lead to substantial competitive harm because “Revealing this information would allow competitors to undercut the number of people for a particular position.”³⁹ Similarly, he

³⁷ Schiller p. 3, Opinion and Order p. 11.

³⁸ Schiller p.5.

³⁹ Schiller p.6.

claims that knowledge of Shift Schedule (and relief factor in particular) would enable “one offeror to undercut another in a very precise manner.”⁴⁰ However, the range of values these variables can take is limited.⁴¹ When a variable can only take a limited range, strategic firms will consider the full set of options and select the optimal value for them. As such, it is not clear how revealing this information would prompt changes to competitor staffing choices or relief factors.

31. The defendants also claim that some of the alleged confidential business information at issue are trade secrets. They, however, provide no economic support—either analytical or theoretical—for this claim. A trade secret is “a secret, commercially valuable plan, formula, process, or device that is used for the making, preparing, compounding, or processing of trade commodities and that can be said to be the end product of either innovation or substantial effort.”⁴² While it is difficult to assess this issue without greater knowledge of the proposal details, the information I have reviewed does not suggest that the information at issue constitutes a trade secret. As noted previously, much of the information at issue may be available from other sources or reflects an obvious potential choice, and, as such, cannot be classified as a trade secret. One intuitive way to evaluate whether or not the information at issue constitutes a trade secret is to imagine whether or not a competitor would be willing to pay (a non-trivial) amount for this “secret” information. The defendants do not make a compelling case that a competitor would find the information withheld under Exemption 4 sufficiently valuable to make paying a non-trivial sum worthwhile. They might like to know this information out of curiosity or general interest,

⁴⁰ Ibid.

⁴¹ Schiller (p.6) even notes that relief factor is bounded by “generally accepted ‘floor’ and ‘ceiling’ ratios.”

⁴² Citation from Department of Justice “Freedom of Information Act Guide, May 2004.”

but I am not sure why they would be willing to spend a significant sum of money to obtain it.

32. In my opinion, to establish a substantial likelihood of a threat to competitor position, the defendants needed to present a plausible theory or compelling evidence that described how, but for the release of some specific information, the outcomes in this market would differ. They have not done this. They have offered only vague speculation that the information at issue could be used to modify competitor bids that frequently does not account for what likely would have occurred even if the information were not released.

I declare under penalty of perjury that the foregoing is correct.

A handwritten signature in black ink, appearing to be "B. Ward", written over a horizontal line.

Bryce A. Ward, PhD

1/28/2011

BRYCE WARD

Ph.D. Economics, Harvard University
 B.A. Economics and History, University of Oregon

Bryce Ward joined ECONorthwest in 2005. His areas of expertise include econometric analysis and applied microeconomics -- including urban and regional economics, labor economics, public finance, and environmental and natural resource economics. Dr. Ward has applied his expertise to a variety of projects involving litigation support and program evaluation. His recent work includes evaluations of the efficacy of several education interventions and of the effects of land-use regulations on property markets.

Dr. Ward received his Ph.D. in economics from Harvard University and his B.A. in economics and history from the University of Oregon. He has taught courses in microeconomic theory, econometrics, labor economics, public finance, environmental and natural resource economics, and social economics at Harvard University, Lewis and Clark College, the University of Oregon, and Portland State University.

Litigation Support Projects**Anti-Trust**

- Testified regarding the economic aspects of alleged anticompetitive behavior in a market for outpatient diagnostic imaging services
- Analyzed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots
- Analyzed the market for MRI services in the Boise and Portland and assessed alleged anticompetitive behavior in this market

Labor

- Organized data and conducted statistical analysis to evaluate claims of discrimination in employer discrimination lawsuits
- Calculated economic damages and testified in wrongful termination lawsuits
- Developed an analytical framework, gathered data, and conducted analyses of current market conditions for workers in comparable jobs and comparable communities as precursor to public-interest arbitrations involving transit districts
- Described the potential impact of the financial crisis, recession, and potential deflation on public interest arbitration
- Testified about the reasons and methods for adjusting wages for changes in the cost of living based on the Consumer Price Index (CPI) and the long-term consequences of not adjusting wages during periods of deflation

- Developed a short-term economic outlook for a regional economy in preparation to labor bargaining
- Analyzed historical wage and benefit growth for sheriff deputies relative to other public and private sector employees in preparation for labor bargaining
- Provided written testimony on the economic effects associated with increasing fees for Columbia River Bar Pilots
- Analyzed firm losses resulting from former employees' breaches of restrictive employment-contract covenants regarding future employment with a competitor

Environment

- Described the impact of a change in harvest allocations on the health and stability of the commercial Dungeness crab industry in Puget Sound (WA)
- Calculated natural resource damages associated with a Superfund site using a Habitat Equivalency Analysis (HEA)
- Calculated lost profits to an oyster farm from chemical contamination
- Described potential economic damages suffered by municipalities as a result of oil spills
- Evaluated the potential economic effects of the U.S. Department of Agriculture and California Department of Food and Agriculture's proposed eradication of the Light Brown Apple Moth
- Calculated profit disgorgement based on emission violations
- Evaluated a contingent valuation study of a proposed wind farm
- Reviewed and evaluated the economic components of a feasibility study and preferred clean-up remedy for a contaminated site
- Evaluated the U.S. Environmental Protection Agency's draft report on groundwater and soil remediation scenarios for a creosote-contaminated Superfund site
- Assisted in an analysis of the fuel ethanol market to determine if refiners could have used ethanol to meet federal reformulated gasoline mandates instead of MTBE during the 1990s

Right-of-way

- Provided oral and written testimony regarding economic issues related to municipal right-of-way fees in New Orleans.
- Provided written testimony to the FCC regarding the economic aspects of allowing local governments to charge telecommunications providers for access to government-owned or managed property
- Addressed the economic issues of telecommunications firms' challenge, under the Telecommunications Act of 1996, to the City of Portland's franchise-fee agreements for use of the municipal right-of-way

Real Estate

- For attorneys representing the proposed class of plaintiffs, provided oral and written testimony on the economic aspects and harm, if any, to plaintiffs, from an alleged scheme that inflated the appraised market value of real estate
- For attorneys representing the proposed class of plaintiffs, provided written testimony on the economic aspects and harm, if any, to plaintiffs, from an alleged scheme that inflated mortgage costs without proper disclosure

Personal Injury/Wrongful Death

- Calculated economic damages in wrongful death lawsuits
- Calculated lost wages and presented expert testimony in personal injury cases

Other

- Testified before the Oregon legislature regarding proposed legislation before the Oregon House that amends ORCP 32 by repealing subsection K and, therefore allowing recovery of UTPA statutory damages (currently \$200) in class actions
- Calculated non-economic damages to a father denied access to his child for 17 years
- Calculated reimbursements to families who adopted foster children as part of a class action settlement
- Calculated damages suffered by an auto dealership and service department stemming from the violation of non-solicitation and non-compete clauses in an asset purchase agreement
- Reviewed and conducted analyses in order to determine specialty forest product harvesters are compelled to sell to a shed the brush they picked under the permit that shed issued them
- Analyzed the impacts of Measure 37 (property rights limitation) on the State of Oregon
- Provided testimony on the consequences to the healthcare markets in Portland of allowing a new hospital
- Estimated share of LCD TVs, LCD computer monitors, and notebook computer monitors were purchased by Oregon consumers and state and local governments as part of a price fixing lawsuit

Consulting Projects

Education

- Designed and implemented a randomized evaluation that employed longitudinal student and school data to demonstrate the effects of Safe and Civil Schools' positive behavior support programs on elementary schools in the Fresno Unified School District
- Developed a method for using longitudinal student data to calculate and report student achievement growth (aka a school value-added-model (VAM)) as part of a school accountability program in Seattle, Washington

- Evaluated the effectiveness of the South Shore School (a public-private partnership school in Seattle, Washington) using a quasi-experimental regression analysis and longitudinal student data
- Evaluated the effectiveness of ASPIRE (a program to increased college enrollment among Oregon high school students) using a regression analysis and longitudinal student data that matched student K-12 records with college enrollment data
- Developed a district report card system for several Oregon school districts
- Evaluated the effectiveness of Pre-K and K programs in Bremerton, WA using a regression analysis on longitudinal student data
- Reviewed literature on motivations for and effects of mergers between institutions of higher education
- Reviewed and evaluated current research on using student test scores to assess school performance for Seattle Public Schools
- Described the Hispanic-White and Black-White achievement gaps in Oregon schools
- Estimated the economic effects of achievement gaps on Oregon's economy
- Reviewed and evaluated current research on the effectiveness of the Safe and Civil Schools program, and worked with clients to develop and implement additional program evaluation.

Labor Markets

- Analysis of the Long-Term Labor Market and Family Outcomes of Harvard Undergraduates
Assisted Professors Claudia Goldin and Lawrence Katz of the Harvard Department of Economics in creating a large longitudinal data set of Harvard College students that matched labor market and family outcomes in the years following graduation to undergraduate records.
- Calculated potential economic costs associated with proposed change in Oregon's meal and rest break rule

Public Policy

- Described the likely impact of a proposed tax increase on state taxable income and economic growth
- Evaluated the effect of enterprise zone tax incentives on economic development using a regression analysis of longitudinal establishment-level data
- Developed a model and analyzed data to estimate gross revenues for video, voice, and data services at the city level for the League of Oregon Cities
- Reviewed and evaluated current research on the impact of increased hospital supply on local health care markets
- Provided data collection services to determine garbage and yard debris can weights and set-out rates for Eugene residents.

Real Estate

- Analyzed the effect of Portland's Intertwine (a network of open spaces) on property values in the Portland, OR Metro area using a hedonic regression analysis and data from county assessors' records
- Analyzed the effect of Seattle's Natural Drainage (low impact development) Projects on neighboring property values using a hedonic regression analysis and data from county assessors' records
- Analysis of the Effect of Regulations on Housing Prices in Greater Boston
Assisted Harvard Professor Edward L. Glaeser in preparing a report for Harvard's Rappaport Institute for Greater Boston and the Pioneer Public Policy Institute that estimated the effect of local regulations on housing supply and housing prices.
- Analysis of Neighborhood Price Dynamics
Assisted Harvard Professor Edward L. Glaeser on a paper detailing the sources of housing-price cycles at the neighborhood level.

Publications

- "The Causes and Consequences of Land Use Regulation: Evidence from Greater Boston" *Journal of Urban Economics* 65(3): 265-278 Glaeser, E., and B Ward.
- "The Effect of Low Impact Development on Property Values" *Proceedings of the Water Environment Federation, Sustainability 2008* , pp. 318-323 Ward, B., E. MacMullen, and S. Reich.
- "Myths and Realities of American Political Geography." *Journal of Economic Perspectives*. Glaeser, E., and B. Ward. Spring 2006.
- Regulation and the Rise of Housing Prices in Greater Boston. Glaeser, E., J. Schuetz, and B. Ward. Cambridge, MA: Rappaport Institute for Greater Boston, Harvard University, and Pioneer Institute for Public Policy Research. 2006.
- "Distance and Social Capital: Can Isolation Be Good?," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006
- "Does Reunion Attendance Affect Alumni Contributions?: Evidence from the Harvard College Classes of 1990-1999," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006,
- "Economic Bridges Falling Down." *Eugene Weekly*. Ward, B. and E. Whitelaw. October 8, 2008.
- "The Economy: Now What? The Economists: Ward and Whitelaw" *Oregonian*, Ward B. and E. Whitelaw. September 20, 2008.
- "Dream On." *Oregon Quarterly*. Ward, B. and E. Whitelaw. Winter 2007.
- "Still the Land of Opportunity?" *Oregonian*. Tapogna, T., B. Ward, and E. Whitelaw. March 2006.
- "The Price Is (Not) Right." *Commonwealth: Growth and Development Extra*. Glaeser, E., J. Schuetz, and B. Ward. January 2006.

Recent Speeches and Presentations

"Benefits and Costs of Seismic Mitigation" CREW Benefit-Cost Analysis Forum, January 2011.

"Does Low-Impact Development Affect Property Values?: Evidence from Seattle's Natural Drainage System Projects." Water Environment Foundation Sustainability 2008 Conference., June 2008.

"Compensation for ROW Access Under the Telecommunications Act of 1996: Fiscal Issues Related to Communications Services." NATOA 27th Annual Conference. Sponsored by the National Association of Telecommunications Officers and Advisors. Portland, Oregon. October 2007.

"Outside the Light: The real factors driving Eugene/Springfield's Economy." Eugene-Springfield Leadership Program. Sponsored by the Eugene Area Chamber of Commerce. Eugene, Oregon. October 2006.

"Deregulating the Housing Market." Preserving the American Dream Conference. Sponsored by the American Dream Coalition. Atlanta, Georgia. September 2006.

Teaching

Visiting Adjunct Instructor, Portland State University; Courses: Global Environmental Economics, Spring 2010.

Visiting Assistant Professor, Lewis and Clark College; Courses: Intermediate Microeconomic Theory, Econometrics, Public Economics, Environmental and Natural Resource Economics, Spring 2008 & Fall 2009.

Visiting Adjunct Instructor, University of Oregon; Courses: Labor Economics, Spring 2009.

Tutorial Leader, Harvard College; Courses: Everybody's Doin' It: Social Interactions and Economics, 2002-2006, Senior Thesis Tutorial: Labor, 2004-05.

Teaching Fellow, Harvard University; Courses: Intermediate Microeconomic Theory, Intermediate Macroeconomic Theory, Microeconomics: A Policy Tool for Educators, 2001-2003.

Teaching Assistant, University of Oregon; Courses: Principals of Microeconomics, Urban Economics, Economy of the Pacific Northwest, 1998-1999.